The Nevada Adequate Yearly Progress Technical Manual Revision 6

March 2010

Prepared by

The Nevada Department of Education

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Section I: Background and Overview of AYP

Statutory Basis

On January 9th, 2002 President Bush signed into law the Federal No Child Left Behind Act (NCLB—HR 1). This reauthorization of the federal Elementary and Secondary Education Act and its sweeping reforms has impact on every state including Nevada. In response to the new federal law, the Nevada Legislature significantly revised its own accountability statutes (Nevada Revised Statutes) through passage of Senate Bill 1 in the 19th Special Session (June, 2003). This revision was necessary given the significant differences between existing State and federal statutes. At the heart of both the federal and revised State statutes is a conservative school, school district, and state accountability model proposing to guarantee all students equity of opportunity for access to a challenging and meaningful educational experience. To support this goal, on an annual basis schools, school districts and the State as a whole are judged against a set of adequate yearly progress (AYP) criteria. The judgment of success (making AYP) is based largely on performance on assessments aligned to State content standards. These criterion-referenced assessments are administered on an annual basis, with specific attention to an analysis of the performance of disparate subgroups or special populations of students.

Since the passage of the Act Nevada has annually complied with the requirements of the law in making annual school and district determinations in each of the last seven school years. The next set of determinations will occur in the summer of 2010 based largely on test results from the spring of the 2009-2010 school year.

Overview of the AYP Determination Process

Following is an overview of the Nevada Adequate Yearly Progress Determination Process. With the anticipated reauthorization of the No Child Left Behind Act, the Nevada AYP model is likely to be subject to additional changes. When those changes introduce significant technical differences, a revision to this bulletin will be provided.

In this Adequate Yearly Progress Technical Manual, the Department focuses on the following elements:

- The Assessment System
- The AYP Determination Process
- Critical Timelines
- Reporting Issues
- Special Schools and Circumstances

The AYP determination process applies equally to schools, school districts, and to the State. In this document, schools are the main descriptive unit of analysis. However, the same general rules for the AYP analysis are also applied to school districts and the State. Note will be made when differences in the application to districts or to the State do exist.

Accountability Based upon State Content and Achievement Standards

The foundation for the NCLB accountability system is built upon State content and achievement standards and large scale assessments designed to measure student achievement of those standards. NCLB expanded on previous requirements regarding the development of state standards in English Language Arts and Math by requiring states to develop content and achievement standards in science.

Similarly, NCLB expanded assessment requirements from previous legislation by requiring states to develop and implement tests in grades 3 through 8 and in at least one grade at the high school level in English language arts and Mathematics. In compliance with the law, reading and math tests are administered in grades 3 through 8. Reading and math tests in grades 3 and 5 were first administered in 2000-2001, and 8th grade tests in English language arts and math were added in 2003-04. In 2005-06, reading and math tests in grades 4, 6, and 7 were implemented. Additionally, by 2007-08, states were required to develop and implement science tests to be administered in at least one grade in three separate grade ranges (3-5, 6-8, 9-12). Nevada currently administers science tests in grades 5 and 8 and has developed a high school exit examination in science. This latter test was administered ”live” for the first time in the 2007-08 school year. But although passing the science test is a requirement for high school graduation, at present science tests are not included in making AYP determinations.

Criterion-referenced Tests Aligned to Standards

Other assessment-related statutory requirements are pertinent to understanding the AYP analysis. Assessments to be used in the AYP determination process must directly align to State content standards. This led to Nevada’s use of its previously existing criterion-referenced tests (CRT) and the expansion of its testing program to meet federal requirements.

Achievement Levels in AYP Comparisons

Tests used in the AYP process must also align with State achievement standards[1]. This means that the tests must enable an achievement level distinction to be drawn among students. Although NCLB only requires the classification of students into three

[1] In Nevada, content standards describe what a student should know and be able to do by the end of a particular grade level. Achievement standards (also known as performance standards) provide a description of what students must demonstrate to be classified along an achievement continuum including Emergent/Developing, Approaching Standard, Meets Standard, and Exceeds Standard.

achievement levels (e.g. basic [below proficient], proficient, and advanced), the federal government allowed flexibility in the labeling of achievement levels and in the number of achievement levels used. In Nevada four achievement levels are used, with two levels identifying performance that is below meeting standard (below "proficient") (see Table 1).

The key point is that each assessment used in the AYP process must yield information that allows school and subgroup populations to be categorized using the four achievement level distinctions. This commonality of achievement levels among assessments allows the results from each to be combined when making AYP determinations.

Table 1. Crosswalk of Nevada and Federal Achievement Level Categories

Nevada Achievement Levels	Federal Achievement Levels
Emergent/Developing	
Approaching Standard	Basic
Meets Standard	Proficient
Exceeds Standard	Advanced

Objective Setting of Test Performance Levels

States have the responsibility to determine what levels of performance (cut-scores) on its tests indicate proficiency in meeting the state's content standards (meeting expectations for student knowledge and skill attainment). States must employ subjective methodologies that rely on the professional judgment of educators in making these decisions. Nevada therefore used the Bookmark procedure to subjectively set cut points. Table 2 below provides a summary of test cut scores that correspond to the achievement levels used in the AYP determination process.

Table 2. Achievement Level Cut-Scores

Grade	Test [a]	Subject	Emergent/ Developing	Approaches Standard	Meets Standard	Exceeds Standard
Grade 3	CRT	Reading	100-199	200-299	300-355	356-500
		Math	100-199	200-299	300-354	355-500
Grade 4	CRT	Reading	100-199	200-299	300-379	380-500
		Math	100-199	200-299	300-375	376-500
Grade 5	CRT	Reading	100-199	200-299	300-384	385-500
		Math	100-199	200-299	300-380	381-500
		Science*	100-199	200-299	300-366	367-500
	Performance	Writing	0-7.5	8.0-11.5	12.0-15.5	16.0-20.0
Grade 6	CRT	Reading	100-199	200-299	300-388	389-500
		Math	100-199	200-299	300-404	405-500
Grade 7	CRT	Reading	100-199	200-299	300-396	397-500
		Math	100-199	200-299	300-412	413-500
Grade 8	CRT	Reading	100-199	200-299	300-372	373-500
		Math	100-199	200-299	300-418	419-500
		Science*	100-199	200-299	300-435	436-500
	Performance	Writing	0-7.5	8.0-11.5	12.0-15.5	16.0-20.0
Grades 10 &11	HSPE	Reading	100-194	195-250	251-306	307-500
		Math	100-229	230-303	304-350	351-500
		Writing	0-3.5	4.0-6.5	7.0-9.5	10.0-12.0

*Science is not included in AYP analyses. Revised 3/28/07

[a] Achievement level cut points for the Nevada Alternate Assessment are not shown.

The Nevada Alternate Assessment

States may use an alternate assessment for students with severe cognitive disabilities. This is predicated on strict eligibility criteria and must be clearly stated in a student's individualized education program (IEP). The federal government places a cap of 1% of the total (district or state) student population that can be assessed using the alternate assessments. Table 3 below includes a summary of the tests used in Nevada's AYP determination process, including the Nevada Alternate Assessment (NAA) (For more information on NAA, visit http://nde.doe.nv.gov/Assessment_NAA.htm)

Table 3. Current Nevada Tests Included in Determining AYP

	Tests Administered in 2009-2010 Included in the AYP Process
Grade 3	CRT—Reading, Math NAA—ELA, Math
Grade 4	CRT—Reading, Math NAA —ELA, Math
Grade 5	CRT—Reading, Math Performance—Writing NAA—ELA, Math
Grade 6	CRT—Reading, Math NAA —ELA, Math
Grade 7	CRT—Reading, Math NAA—ELA, Math
Grade 8	CRT—Reading, Math Performance—Writing NAA—ELA, Math
High School	HSPE—Reading, Math, Writing NAA —ELA, Math
CRT = Criterion-referenced tests HSPE = High School Proficiency Examination NAA= Nevada Alternate Assessment ELA = English Language Arts (includes reading,writing, and the Writing Alternative Assessment	

Summary of Section I: Background and Overview of AYP

The requirements for standards and assessments within the NCLB Act lay the foundation for the AYP determination process. Although the Act calls for annual assessment in grades 3 through 8, the Act currently does not prescribe that assessments be used to track student progress longitudinally. As will be described in detail later, the AYP analysis process is based upon a status model that focuses on the percentage of students within a school (school district and state) that demonstrate proficiency at a given time. The AYP analysis uses summative assessment results rather than interim or formative assessments to determine which schools meet AYP requirements and which schools do not.

Section II: The AYP Determination Process

Complexity of the AYP Process

On an annual basis, schools, school districts, and the State as a whole must be judged on the adequacy of their progress toward meeting the expectations for achievement, expressed as Annual Measurable Objectives (AMOs). As mentioned above, the inclusion of the word "progress" in the annual judgment process lacks precision. Since the analysis is based upon summative assessments, we are making determinations of achievement based upon static performance. AYP does not take into consideration progress along a continuum towards the AMO except in the Safe Harbor analysis.. AYP determinations are decided by looking at a "snapshot" of achievement. The basic question asked by the model is if a sufficient percentage of students are making AYP by demonstrating satisfactory knowledge and skill attainment. If "Yes," a school or district makes AYP; if "No," the school or district does not make AYP. Because there are a multitude of factors to consider before that final judgment can be made, the determination process is quite complex.

Factors in AYP Determination

Subject Area Achievement Indicators

AYP is determined separately for English Language Arts (ELA) and for math. At this time, the federal NCLB mandate does not require the inclusion of science results for AYP purposes. For each subject, the State must establish annual goals (Annual Measurable Objectives) indicating the minimum percentage of students that must score at or above the "meets standard" level of achievement on the Nevada AYP tests. This percentage is often referred to as the "percent at/above cut" or the PAC. The PAC is used to make status comparisons or comparisons to the annual targets (AMOs). If a school or subgroup population meets the "other indicator" criteria but does not meet the PAC goal, it qualifies for Safe Harbor if the subgroup demonstrates a decrease of at least 10% in the percentage of non-proficient students from the previous school year. The school or subgroup can then be classified as meeting the AYP achievement indicator under the Safe Harbor provision

Participation Indicators

Schools are required to have at least 95% of all students enrolled at the time of testing participate on the State AYP tests. Participation rates on ELA tests and math tests are considered separately. If a school or subgroup population has less than 20 students, the participation rate is based on N-1; in other words, if the school or special population has 19 students, 18 must participate in the assessments to pass the participation achievement indicator (PART).

Other Indicators

In addition to subject area proficiency (PAC) and test participation (PART), schools are evaluated with at least one "other" indicator (Other Indicator or OI). A school can be

classified as not making adequate yearly progress based solely on the Other Indicator , with the Other Indicator tracked separately from ELA and math performance (PAC). Similar to the status or achievement comparisons, school performance on the Other Indicator is compared against an annual statewide goal (AMO or Annual Measurable Objective). The Other Indicator is also considered in such situations where a school must use Safe Harbor to meet achievement goals; the Whole School as well as each special population must also meet the Other Indicator expectation to qualify for Safe Harbor.

At the high school level, NCLB requires that graduation rate be used as an Other Indicator. Currently the graduation rate AMO is 50% or an improvement from the previous year The operant graduation rate for Nevada schools for the 2009-2010 AYP analysis will be the "leaver rate", as explained on page 20 in the Other Indicator section: Graduation Rate. At the time of this revision, the NDE is awaiting approval of its plan for implementing the USED required Adjusted Cohort Graduation Rate (ACGR), The ACGR will be used to calculate the graduation rate for the class of 2011 and applied to 2011-2012 AYP determinations.)

When calculating middle and elementary schools' other indicator, Nevada Revised Statutes (NRS) require that elementary and middle schools meet the 90% whole school and special population expectation for average daily student attendance (ADA. Federal policy makes it clear that Other Indicator is a condition for successful AYP determinations. Schools could successfully meet the PAC and PART achievement indicators and still not make AYP should they not achieve the Other Indicator AMO.

Multiple Comparisons in AYP Determinations

Subgroups

ELA and math participation, ELA and math achievement, and Other Indicator performance are judged separately and include up to nine separate student subgroups. These include the school as a whole, the five major race/ethnic subgroups (American Indian, Asian/Pacific Islander, Hispanic, African American, and white), students with disabilities, students with limited English proficiency, and students who are economically disadvantaged (based upon eligibility for the free or reduced lunch program). Individual students are counted multiple times with all students included in the school as a whole as well as their unique ethnic group. Many of these same children may also be included in the IEP, LEP or FRL. Additionally, eligibility for the Safe Harbor provision is determined by an additional analysis including Other Indicator as a factor along with the reduction in non-proficient students.

In brief, a school as a whole and each of its identifiable student subgroups undergo several levels of analyses to demonstrate Adequate Yearly Progress. The first analysis is based on Participation; a minimum of 95% of the enrolled students from each subgroup must participate in the State-mandated testing. A second analysis is for Proficiency; where each subgroup must meet the achievement indicator either by meeting the statewide status goal (AMO) or by meeting the requirements for the Safe Harbor provision for each reported subgroup in each subject area. A third analysis is for

Other Indicator; the school as a whole must meet (or improve from the previous year) the graduation rate or average daily student attendance criterion. The Other Indicator expectation must also be met by any student subgroup that would meet the achievement indicator through the Safe Harbor provision.

The State and school districts must conduct many comparisons for each school, and the school must pass each satisfactorily to be classified as Adequate. In contrast, a failure in a single comparison may lead to failing AYP. Table 4 presents a summary profile of the basic comparisons that must be made when determining AYP.

As shown in Table 4, nine student groups were judged. The YES indicates that the relevant AYP requirement was met. Because the status requirement (AMO) was successfully met by each group, the Safe Harbor provision was not applicable (NA). Because Safe Harbor was not applicable, the Other Indicator comparisons for groups other than the school as a whole also were not applicable.

Also illustrated in the table are the 37 basic comparisons that a school might be evaluated on. This number can very easily grow to 63 comparisons. But in reality, many school populations do not include all possible student groupings. Additionally, many schools use the Safe Harbor provision to meet achievement targets. Since no group can qualify for Safe Harbor without meeting the Other Indicator requirement, the OI comparison is relevant.

Table 4. Hypothetical School AYP Profile

Population	ELA Participation	ELA Achievement		Math Participation	Math Achievement		Other Indicator
		ELA Status	ELA Safe Harbor		Math Status	Math Safe Harbor	
School	Yes	Yes	NA	Yes	Yes	NA	Yes
American Indian/ Alaskan Native	Yes	Yes	NA	Yes	Yes	NA	NA
Asian/ Pacific Islander	Yes	Yes	NA	Yes	Yes	NA	NA
Hispanic	Yes	Yes	NA	Yes	Yes	NA	NA
African American	Yes	Yes	NA	Yes	Yes	NA	NA
White	Yes	Yes	NA	Yes	Yes	NA	NA
IEP	Yes	Yes	NA	Yes	Yes	NA	NA
LEP	Yes	Yes	NA	Yes	Yes	NA	NA
Low SES (FRL)	Yes	Yes	NA	Yes	Yes	NA	NA

This general description gives a sense of the complexity involved in judging a school for accountability under NCLB; however, there are several additional steps to be taken through analysis to complete the AYP analysis. In the next section we will discuss how each of the AYP variables is operationalized and how other methodological considerations are crucial to the analysis.

Summary of Section II: The AYP Determination Process

The determination of AYP classification and designation is a complex process based on static performance, or performance on summative assessments. In judging the adequacy of a schools' progress, several factors are involved with several comparisons made. In the comparison to annual targets (AMOs), subject area indicators in English Language Arts and in math are based on PAC or percent of students achieving at or above cut scores. Schools must also meet the 95% student participation rate on the State AYP tests. In addition, the Other Indicator requires an average daily attendance rate (ADA) of 90% for elementary and middle schools and a graduation rate of 50% for high schools. At the minimum, thirty-seven comparisons are made during the AYP determination process.

Section III: Key Methodological Considerations

Full Academic Year

One of the initial steps in organizing information in preparation for the AYP analysis is to identify the population of students to be included. No Child Left Behind allows achievement indicators for Whole School and disaggregated subgroup populations test performance based only on those students who have been enrolled for a full academic year. This factor is called Year In School (YIS) for school evaluations and Year In District (YID) for district evaluations. If a student is continuously enrolled in the same school for the full academic year, his/her YIS and YID is 1 and qualifies his/her achievement performance to be included in the calculation for proficiency (PAC). In contrast, test participation and Other Indicator performance do not include the YIS and YID filter in defining the eligible student population: all students, even those not enrolled for a full academic year, are included in Participation (PART) and Other Indicator achievement indicators.

To judge which students will be included in the PAC analysis, we define continuously enrolled. any student that is considered to be enrolled at a particular school for a full academic year (FAY). He or she will be considered continuously enrolled if the student was enrolled in the particular school on or before the official count day of students, which occurs on the fourth Friday of the school year, through the specified test window, which occurs in mid-Spring.[2]

Reliability and Validity of Data Aggregation

Sample Size and Reliability

Another important NCLB requirement is that states build reliable and valid systems of measurement. What approaches are best suited to support the reliability of the system of determining AYP? Two assumptions are the basis for choices made in Nevada. The first assumption is that as the number of individual comparisons made to analyze a school increases, so does the probability that a school will fail AYP. In other words, a school with several reporting subgroups is more likely to fail AYP than a school with only a few reporting subgroups. A second assumption is that as the size of a school population increases, statistical reliability also increases. Therefore, the larger the student enrollment participating in state mandated tested, the greater the probability the final AYP determination is accurately representative of the school.

For statistical reliability in Nevada, data is aggregated across grades when making AYP determinations. That is, the AYP analysis is not grade-specific except at the high school level. For example, a typical grade configuration among elementary schools in Nevada is a K-5 structure. For these schools, assessments administered in grades 3

[2] Note that the same rules apply to school districts. A student is considered in the achievement-based analysis for school districts if he or she has been in the school district for a full academic year. The difference at the district level is that a student could be included in a school district analysis even if he/she had attended two or more schools during the school year, so long as the different schools are all part of the same school district. For the State AYP analysis, all students, regardless of years in school/years in district are included in the analysis.

through 8 are used for the AYP analysis. All assessment-related indicators (PAC and PART) reflect an aggregation (adding up) of students across grades 3 through 8 with OI reflecting school wide average daily attendance.

Aggregating across grades results in far fewer school-level comparisons (in contrast to grade- by-grade comparisons) and in a more statistically representative assessed population. Such a cross-grade aggregation exerts some control over the effect one particular cohort of students might have on the whole school. For example, because of aggregation of data across grades, the impact of a poorly performing 3rd grade cohort might be offset by a higher performing 5th grade cohort.

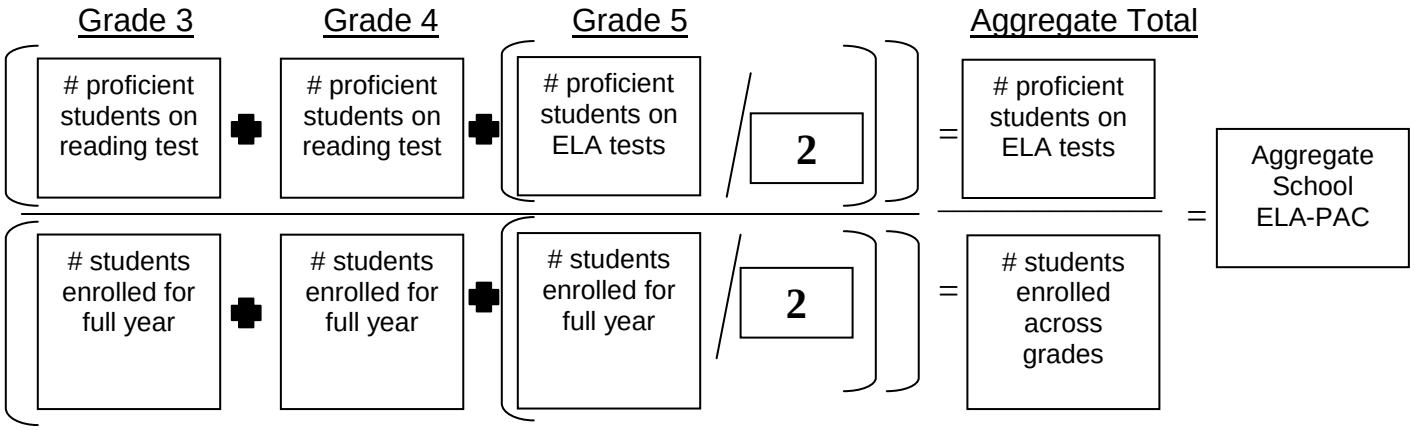
Challenges in the Aggregation of Data

Data aggregation is not accomplished easily. It involves more than simply adding students. Rather, it requires consideration of combinations of different tests. For example, a typical elementary aggregation of assessment results may include math results for grades 3 through 5. But for ELA, reading tests in grades 3 through 5 and a writing test in grade 5 are included. Additionally, some IEP students might take the Nevada Alternate Assessment. This means that the aggregation of that elementary school's achievement indicators would include three grades and several different types of assessment.

Combining information from the disparate tests is complicated by the different ways those tests are scored. For example, the reading test is scored on a scale ranging from 100 to 500 while the 5th grade writing test is scored on a scale ranging from 4 to 20. These scale differences are overcome by combining the tests using the previously described four achievement level scores (Emergent/Developing, Approaching Standard, Meets Standard, and Exceeds Standard). Each test used in the system must align to State content and achievement standards. The tests align to the achievement standards by yielding achievement level scores. These achievement level scores provide a general statement regarding a student's overall performance relative to Nevada ELA and math standards.

Although the reading test at grade 5 assesses different ELA content standards than the 5th grade writing test, each test provides an estimate of student proficiency relative to ELA standards. We could simply add up the number of "meets or exceeds standard" students and divide this number by the total number of test takers, but this would in effect double count 5th grade students. To control for this, we assign to this 5th grade group .5 ELA credit for each of the two tests (ELA reading and ELA writing) before adding 3rd and 4th grade students to the aggregation of ELA.

Generally speaking, for schools we combine the numbers of proficient students for each test and divide that number by the aggregated grade level enrollment counts. Graphically the aggregation looks something like this:



In short, consistent and statistically reliable data aggregation is employed to meet the NCLB requirement for a reliable and valid system. A similar process of data aggregation must be used in middle school and in high school to calculate PAC (Percentage At or Above Cut) estimates. By aggregating results across grade levels we minimize the number of comparisons a school is subject to, providing a better proportional representation of the school, and, therefore, an increase in stability and reliability of the data used to make AYP determinations.

A third consideration related to system reliability and validity deals with the identification of student groups and the statistical confidence (expressed as the Confidence Interval or CI) associated with student group test performance. These issues will be discussed in the next section.

N-Size, Confidence Intervals, and Systems Reliability & Validity

N-Size and Reliability

As noted above, it is assumed that a greater proportional representation of a school population produces a more reliable estimate of school performance. That is, the larger the population assessed, the more probable the analysis results will be accurate (valid) and reliable. NCLB requires that states employ reliable and valid systems with the Act making several references to minimum group size (n-size) for reporting and comparison purposes. Unfortunately, conventional statistical wisdom and practicalities associated with public schools forbid a simple application of a minimum n-size if interpretations are to be both reliable and valid.

Much national debate on the issue of a reliable n-size has ensued. One side has suggested that a minimum n-size to "guarantee" a reasonable degree of reliability might be as low as 100 students or as high as 350 students. But this would result in exemption of large numbers of schools from standard statistical comparisons of their performance, and would eliminate consideration of almost all subgroup comparisons in most schools. The exclusion of large numbers of schools and entire student groups

within schools severely threatens the validity of the system. This was not the intent of NCLB, which requires that "no child (be) left behind."

There is also legitimate reason to be concerned when sample sizes become very small. With small samples, estimates from year-to-year can become unstable, with observed shifts in performance unrelated to school effectiveness So, a desirable balance must to be made between too many and too few students – too large an n-size or an n-size that is too small. In Nevada, the n-size for student subgroups analyzed for proficiency (PAC) has been set at 25. For the Whole School group, no minimum n-size is set – all schools must be evaluated for AYP analysis regardless of n-size.

Confidence Intervals as Statistical Controls for Error

One solution to the issue of variability in student assessment results lies in the use of confidence intervals (CI). Confidence intervals can be used productively to control for year-to-year instability created by factors unrelated to instruction or school effectiveness. Another benefit of using confidence intervals is that minimum n-size requirements can be set l as low as 5 and still compute stable results.

Error always affects achievement estimates, but confidence intervals provide control for some of the known contributors to measurement error (i.e. sampling error). The degree of confidence is predetermined at 95% upper-tail prior to conducting the statistical tests. In this way, the same degree of confidence can be achieved when our n-size includes 100 students in a school or when it includes 25 students. This also enables us to have the same confidence for multiple student groups within a school even though their sizes may vary.

However, as part of the discussion about the minimum n-size issue included some reluctance to rely solely on statistical approaches to control "error." Because of this concern, Nevada has chosen to use a hybrid approach that employs confidence intervals but does not conduct statistical tests on subgroups within schools assessing fewer than 25 students in the aggregate (e.g. summed across grades 3, 4, & 5) subgroup. That is, when n-size for an aggregate subgroup's PAC is less than 25, the AYP analysis is not conducted. However, for a whole school with an n-size less than 25, an AYP analysis is conducted.

How Do Confidence Intervals Work?

Confidence intervals and their application are built on the basic measurement assumption that all measurements contain random error. In other words, an observed performance on a test is equal to "true" performance plus the effect of random "error." On any given day a student may perform better or worse than his/her "true" performance dependent upon internal and external conditions Examples of conditions that might affect student performance include a dog barking outside the window of the testing room, having no air conditioning, being sick, using a test form that was positively biased in terms of the content most recently studied, or making a lucky guess. These are all factors that might provide test results that were not "true" indicators of student performance.

Based on the possibility of such factors affecting student performance for any given test administration, a student's observed (assessed) score is just as likely to be an overestimation (false positive) as an underestimation (false negative) of the student's "true" level of achievement. Sometimes test scores suggest a student is more knowledgeable than he/she actually is, while at other times test scores suggest a student is less knowledgeable than he/she actually is. By using confidence intervals, we can specify the "limits" within which true performance may fall, allowing for statistically accurate upper and lower limits of performance estimation. For example, if a student scored a 50 on a test, confidence intervals allow us to judge the likelihood that the student's true score is between 40 and 60.

Using a graph of a normal distribution (e.g. bell-shaped curve), it is easier to observe this relationship (see Figure 1). We can examine the normal distribution of scores around the observed score and specify the amount of confidence being sought. In the example below, a two-tailed 95% limit is illustrated.

Figure 1 depicts how the observed score may underestimate performance or overestimate performance. By organizing decisions using a two-by-two classification table (Table 5), we can see the types of errors that can be made using observed performance without considering measurement error (e.g. false negative or false positive classifications).

Figure 1. A Normal Distribution

Rationale for Use of Upper Confidence Interval

Table 5 depicts the classification of high and low achievers based on test performance. From this table we see that some high achievers score high on the particular assessment while others could score low. High achievers that score high have been correctly classified , while students that traditionally score high score low were incorrectly classified. This latter error is referred to as a "false negative." In contrast, a low achiever may also score high or low. A low achiever who scores high would be incorrectly classified as high achieving which is commonly referred to as a "false positive."

Given the consequences associated with NCLB, the choice has been made to emphasize control against false negatives. In practice this means that we focus our attention on the upper limit of observed (assessed) performance when making comparisons. Student achievement scores used in the AYP analysis are controlled against false negatives through the use of the upper level of confidence interval (CI).

Table 5. Potential Classification Errors

	High Test Score	**Low Test Score**
High Achiever	Correct	*False Negative*
Low Achiever	*False Positive*	Correct

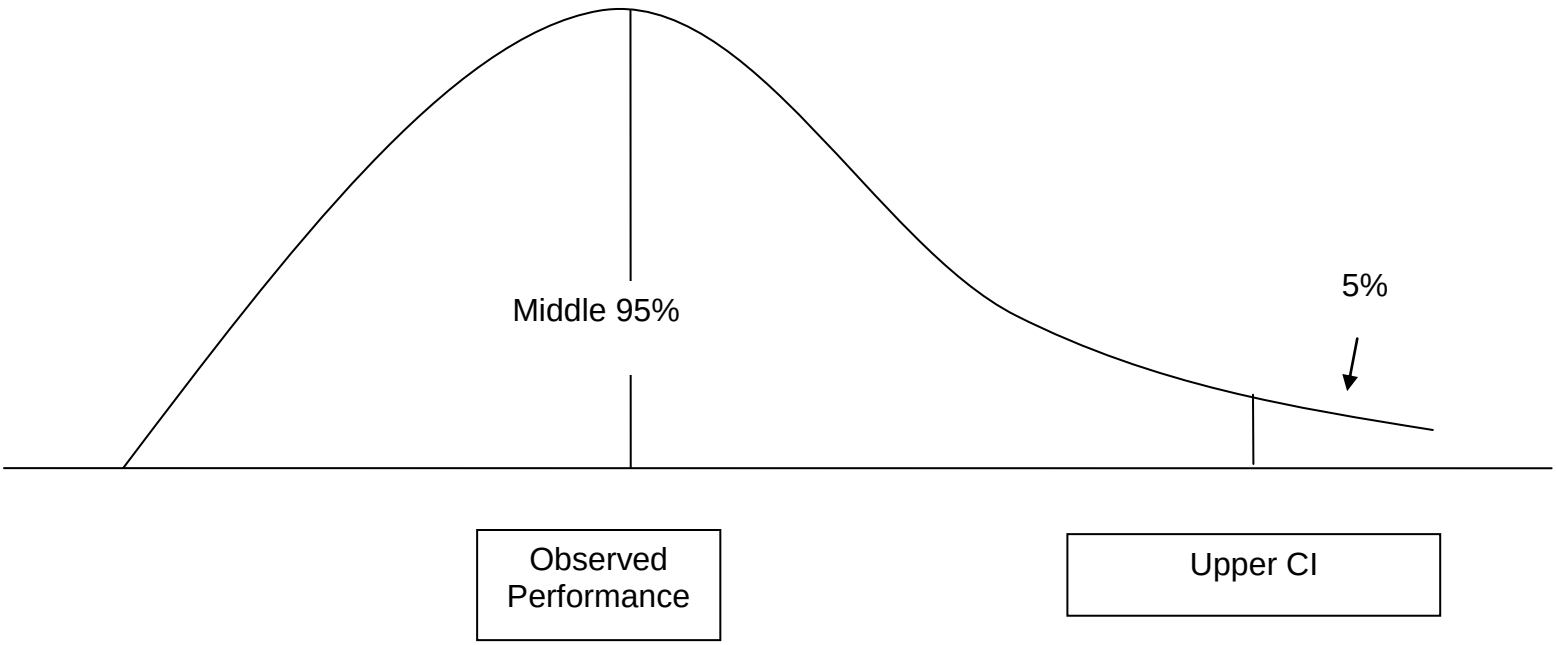


Figure 2. Negatively Skewed Distribution with Focus on Upper Boundary

By choosing the upper confidence interval, we have made the choice to accept more false positive errors. This is a difficult choice but prudent given the consequences associated with negative AYP classifications. In other words, before applying invasive corrective actions to a school which has failed AYP, there should be a high degree of confidence that the school has not been falsely identified as failing. It is important to restate that this application of control through the use of confidence intervals can be done with virtually any sample size (or n-size) and establishes an "even" playing field, thus providing a fair analysis of achievement results. Regardless of sample size the use of confidence intervals better allows us to achieve reliable, consistent decision-making.

Summary of Section III: Key Methodological Considerations

Several key methodological factors are critical in making reliable and valid AYP analyses. NCLB limits the analysis of achievement indicators to only those students continuously enrolled for the full academic year. Another factor is the assumption that the greater the proportion of students included in the assessment system, the greater the reliability of results. The rationale and system of aggregating data across grades was described. Responses within the AYP analysis design to challenges to the validity of the system such as use of minimum n-size were explained. The application of confidence intervals as a means of addressing the challenge of validity and reliability related to n-size was justified.

Section IV: Operational Definitions : Achievement, Participation, & Other Indicators

This section will address each AYP indicator in turn, beginning with the achievement indicator (PAC), then proceeding to the participation indicator (PART), and ending with the Other Indicator (OI). The basic calculation for each will be explained as well as how each indicator is used in the AYP determination process.

Achievement Indicators

Achievement Indicator 1: Status / PAC

The PAC (Percent at/above Cut) for a school is the primary achievement indicator for determining AYP. It is derived by simply dividing the numerator, consisting of those students that demonstrate performance meeting or exceeding standard by the denominator, consisting of the total number of students enrolled during testing with YIS (or for districts YID) of 1.

$$\frac{\text{Number of meets or exceeds standard students}}{\text{All students with YIS = 1 (or YID=1 for district analysis)}} \times 100$$

For example, if 1000 students were enrolled in an elementary school for the full academic year (FAY), and 389 scored at or above the meets standard cut score, the PAC would equal 389/1000 x 100 or 38.9%. Note that in making comparisons, percentages are rounded to the one-hundredth of a percentage point. So if the total population had been 900, PAC would equal 389/900 x 100 or 43.222222222222… (or 43.22%).

Achievement Indicator 2: Safe Harbor / Relative Growth

Safe Harbor, or relative growth, refers to the percent reduction in the percentage of non-proficient students. It relies on the calculation of PAC but requires the PAC in the current school year to be compared to the PAC from the previous school year (e.g. percent differences in PAC rates). So, using the same definition above for calculating PAC, relative growth is equal to:

$$1 - [(1 - PAC_{\text{current year}}) / (1 - PAC_{\text{previous year}})]$$

For example, let's assume that in the current year the PAC was 30.00% and in the previous year it was 25.00%. Relative growth would be equal to 1 – [(1 – .3) / (1 – .25)] or 1 – (.7 / .75) or 1 - .9333 or .0667. This decimal value is derived by multiplying by 100 and finding that the percentage of non proficient students was reduced by 6.67%. Thus, the Safe Harbor requirement of 10% growth was not met in this example.

Participation Indicator

The participation rate is a relatively simple indicator to derive. It is equal to the number of students who took the test divided by the total number of enrolled students, regardless of whether the student was enrolled during the full academic year (FAY or the period between count day and test administration). The formula for calculating participation is shown below.

$$\frac{\text{Number of students who took the test}}{\text{All students enrolled, regardless of YIS (or YID)}} \times 100 \text{ (rounded to second decimal place)}$$

For example, if 950 students took the test and 1000 students were enrolled, the participation rate would be equal to 950/1000 x 100 or 95%.

The difficulty in determining participation rate is not in calculating the rate but in determining what constitutes "participation." Any student who has made a legitimate attempt at taking a test on one of several subtests per subject area is considered to have participated. The only way to determine participation is by observing at least one single valid item response per subject-area test.

Other Indicators

Other Indicator 1: Average Daily Attendance (ADA)

Average Daily Attendance is also a relatively simple indicator to calculate, assuming the necessary data elements are available. Considering and collapsing across all students in the school or subgroup within the school, we divide the sum of days present by the sum of days present plus days absent:

$$\frac{\text{Sum of days present during the school year}}{\text{(sum of days presents) + (sum of days absent)}} \times 100 \text{ (rounded to second decimal)}$$

To calculate this figure, we must know for each student the number of days they were considered "in attendance" and the number of days they were absent. Because of the timing of when this calculation must be made and because of significant differences in school schedules (e.g. multi-track schools), we estimate average daily attendance based on the first 100 days of instruction within the school. Data to complete these comparisons are furnished by school districts to the NDE through the System of Accountability Information in Nevada **(**SAIN**)** and are based on attendance information pulled directly from local student information systems.

Other Indicator 2: Graduation Rate

Nevada's AYP graduation rate is currently a "leaver rate,, but the Adjusted Cohort Graduation Rate (ACGR) is being phased in for the class of 2011. The ACGR determines graduation using the cohort first time freshman in a particular class +(transfers in – transfers out)..

Graduation rate is calculated to represent the school as a whole and any of the ethnic subgroups having graduates. Graduation rate is quite complex in its calculation and is dependent on the availability of several pieces of information.

Graduation rate involves the percentage estimate of graduation among a population of students (e.g. the graduating class of 2009). Information must be collected on this population of students throughout high school including annual dropout numbers,and figures pertaining to several separate completion options (e.g. standard diplomas, adjusted diplomas, certificates of attendance, GED recipients). Once collected, the basic formula involves the division of students receiving standard, advanced, and adult diplomas by a combination of all completion possibilities, along with the numbers of cohort students drop outs from the class in grades 9, 10, 11, and 12.

The current graduation rate is calculated using the following formula:

$$\frac{(\#\text{ St D} + \#\text{ Ad D} + \text{Adv D})}{(\#\text{ Comp} + \text{DO 12 Y} + \text{DO 11 Y-1} + \text{DO 10 Y-2} + \text{DO 9 Y-3})} \times 100$$

Where

St D = Number of Standard Diplomas
Ad D = Number of Adult Diplomas
Adv D = Advanced Diplomas
Comp = Number of Completers (Standard, Advanced, Adult, Adjusted, Certificates of Attendance)
DO 12 Y= Number of 12th Grade Dropouts from Current Year
DO 11 Y-1 = Number of 11th Grade Dropouts from Year Previous
DO 10 Y-2 = Number of 10th Grade Dropouts from 2 Years Previous
DO 9 Y-3 = Number of 9th Grade Dropouts from 3 Years Previous

(Source: page 30, NRS 385.347 *Nevada School & School District Annual Reports of Accountability Handbook: Reporting for 2008-2009*)

As demonstrated from the formula, much information about a population of students is needed to calculate graduation rate. When graduation rate is unavailable for a school or student group, we must use average daily attendance instead.

Two Types of Other Indicator

Finally, two substantive differences exist between graduation rate and the other AYP indicators. First, the need for completion information on graduation rate makes it impossible to calculate the indicator for the “current” school year. In other words, for the 2009-2010 AYP determinations, graduation rates reflecting the graduating class of 2008-2009 have to be used. Second, the graduation rate indicator collapses

information across a four-year time span, while the other achievement indicators (PAC, PART, ADA) rely primarily on a single year of information. This means that change with respect to graduation rate is likely to take more time to observe. In other words, the introduction of a school improvement intervention to address dropout issues is likely to take a considerable amount of time to demonstrate an effect on the actual graduation rate for a school or any of its student subgroups.

Summary of Section IV: Operational Definitions : Achievement, Participation, & Other Indicators

An explanation of the derivation of the three AYP indicators (PAC, PART, and OI) was provided in this section. The indicators are also defined in operational terms with the formula for each provided along with practical examples of how each is applied. Relative growth or Safe Harbor was similarly explained. The process for calculating the two other indicators (graduation rate and average daily attendance) was outlined, along with an explanation of the differences between the two. A brief explanation to the anticipated change in the graduation rate and a timeline for implementation of the new adjusted cohort graduation rate was included.

Section V: Indicator Comparisons: Achievement, Participation, & Other Indicators

Now that we know how the AYP variables are derived, we will look at how they are used in making the comparisons illustrated in Table 4. We will examine each indicator in turn and explain its role in the AYP analysis.

Achievement Indicator Comparisons

Status/PAC Comparisons

As part of the AYP determination for a school, the PAC rate for the whole school and for each of its identifiable subgroups must be compared against an associated statewide annual measurable objective (AMO) PAC target rate. As noted above, the PAC comparisons are made separately in ELA and in math, using only students enrolled within the school for the full academic year (students with YIS=1, or for districts YID+1).

Different PAC targets exist in ELA and in math; therefore comparisons must be made separately in each subject area. However, the same PAC goal must be used to judge whole school and special population student group performance. Also, subject area PAC goals differ for different configurations of schools such as elementary, middle school, and high school. Percentage At or Above Cut Annual Measurable Objectives for English language arts and mathematics for 2009-2010 are included in Table 6.

.

Table 6. PAC AMOs for 2009-2010

	ELA	MATH
Elementary	63.80%	65.90%%
Middle School	63.80%%	65.90%
High School	86.70%	71.30%

When submitting its AYP plan to the federal government, the State of Nevada was required to estimate targets for each school year leading up to the 2013-14 school year AMO target of 100%. The State has used a tiered approach where it holds constant annual goals for as long as allowed under NCLB, while making equidistant target increases when necessary. Table 7 illustrates the estimated AMOs through 2013-14.

Table 7. Annual Measurable Objectives through the 2013-14 School Year

School year	Elementary School		Middle School		High School	
	ELA	Math	ELA	Math	ELA	Math
Baseline, 2002-03, 2003-04	27.50%	34.50%	37.00%	32.00%	73.50	42.80
2004-05, 2005-06, 2006-07	39.60%	43.30%	39.60%	43.30%	77.90%	52.30%
2007-08, 2008-09	51.70%	54.60%	51.70%	54.60%	82.30%	61.80%
2009-10, 2010-11	63.80%	65.90%	63.80%	65.90%	86.70%	71.30%
2011-12	75.90%	77.20%	75.90%	77.20%	91.10%	80.80%
2012-13	88.00%	88.50%	88.00%	88.50%	95.50%	90.30%
2013-14	100%	100%	100%	100%	100%	100%

High School PAC AMOs

The significantly higher PAC AMOs at the high school level is worth mentioning. The basic difference between high school and the other school levels is in how the assessment results are used in the AYP calculations.

The federal regulations supporting the NCLB assessment provisions prescribe that for AYP purposes, states only use students' first testing opportunity. In other words, if a state administers a 3rd grade test more than once in grade 3, it is required to use the first administration of that test in determining AYP.

This requirement created a difficulty for states such as Nevada that use high school exit examinations, which provide multiple opportunities for high school students to pass the test. The high school exit examinations in Nevada are used to measure proficiency as students are exiting high school. However, in the service of fairness to students and schools, the State begins providing opportunities for students to take these examinations as early as grade 10. It would be inappropriate to rely solely on 10th grade performance when we know that the test is designed to measure content that students might not be exposed to until after that grade level. Therefore Nevada decided to include its High School Proficiency Examination (HSPE) in the AYP system as opposed to creating a separate set of high school assessments.

The Nevada plan uses a cumulative exit examination pass rate through spring of grade 11 to establish the annual PAC rate for high schools.

AMOs in PAC Comparisons

To make the status comparison for AYP, each year the PAC for the whole school and for each student subgroup is compared against the targeted AMO for the subject area. For example, in elementary school and middle school, the ELA PAC annual measurable objective in 20009-2010 is 63.80%. To meet the status requirement, the whole school and each subgroup has to have an ELA PAC rate of at least 63.80%.

Adjusting PAC for Sampling Error

To strengthen the reliability of the status comparisons, the standard error of the proportion is used to adjust observed PAC scores before a comparison against the State target is made. This is an important step allowing for a predetermined degree of confidence in the status comparisons. (See discussion of confidence intervals above in Section III.)

The standard error of the proportion accounts for sampling error associated with a particular cohort of students. The formula for the adjustment is relatively simple to apply. We multiply the proportion of proficient students by the proportion of non-proficient students and divide that quotient by the number of students in the sample population. We then take the square root of that dividend. For a hypothetical example, if 120 students in the school took the ELA tests and 36 scored at or above proficient (30% PAC), we would multiply .30 by .70 and divide that figure by 120. This equals .00175. The square root of .00175 is .0418. The result is a single standard error. The single error adjustment provides more certainty than relying on the observed score alone, but the level of certainty might be considered low using conventional applications of statistical tests. To ensure at least a 95% level of confidence, we would multiply the standard error by 1.645 (e.g. one-tailed z-score transformation). Applying this rule to our standard error would result in a one-tailed adjustment of .0418 x 1.645 or .0688 (6.88%).

We would then add the 6.88% adjustment to the observed PAC of 30.00%. Thirty plus 6.88 is equal to 36.88%. The adjusted PAC of 36.88% would be the figure compared against the State annual measurable objective (AMO) of 63.80% for elementary and middle school ELA. In this example the school would not have met the status achievement comparison. [3]

The use of the adjusted score is not intended to give schools an advantage or to lower expectations. As stated, the use of the confidence interval better ensures the reliability of the system by avoiding false negative classifications. Having a reliable system is a federal requirement, and by making the adjustment as noted above, a relatively high degree of confidence is maintained that for any single comparison, the school's "true" level of performance, or that of one of its special population student groups, is below the state target and, hence, may result in the application of sanctions.

Safe Harbor/Relative Growth Comparison

When schools or subgroups fail to meet the PAC AMO, they may still qualify to make AYP if the percentage of non-proficient students is reduced by 10% or more, and if the group in question has met the criteria of the other indicator analysis (ADA or graduation rate). Therefore, the Safe Harbor/ relative growth comparison is a conjunctive analysis

[3] For a useful tool to calculate PAC, use the AYP Calculator provided by NDE and available at http://nde.doe.nv.gov/calculators.xls or in the AYP Documents folder under the AYP tab on the Bighorn portal.

in which **both** a 10% reduction in the percentage of non-proficient students **and a** performance meeting or exceeding the target on the Other Indicator is observed (see the next section for information on Other Indicator comparisons).

As with status/PAC comparisons, only students enrolled for a full-academic year are included in this Safe Harbor comparison.

For this comparison, the NON-PAC (e.g. percentage of non-proficient students) rate from the current year is divided by the previous year's NON-PAC rate. The resulting ratio is then subtracted from 1 to obtain the observed percent reduction in the percentage of non-proficient students last year. The change is compared to the 10% change threshold. As with status comparisons, the State uses confidence intervals to ensure more reliable decisions. Because the PAC rate from two separate administrations is considered, control over sampling error from both administrations must be achieved, and so a slightly different error estimation formula is used.

With this end in mind, the standard error of the difference in proportions is used. The formula is similar to the formula for the standard error of the proportion. The basic difference is that we take the square root of the sum of the variance estimate for each separate administration.

$$\sigma_{P1-P2} = \frac{\sqrt{\sigma_{P1}^2 + \sigma_{P2}^2}}{\text{NON-PAC}_{\text{Previous Year}}}$$

To help explain the Safe Harbor calculation, we provide an example. In this hypothetical year, 36 of 120 students or 30.00% were proficient (PAC) whereas in the previous year 25 of 100 or 25.00% of the students were proficient. We would calculate the change in the NON-PAC rate by dividing the current year NON-PAC (e.g. NON-PAC = 100-PAC) rate by the previous year NON-PAC rate and then subtracting the ratio from one. This would work out as:

1 - [(1 - .30) / (1 - .25)] = 1 – (.70 / .75) = 1 - .9333 = .0667.

The result suggests a 6.67% reduction. This difference still would have to be adjusted to account for sampling error.

The adjustment is derived using five steps. First, multiply the proportion of proficient students by the proportion of non-proficient students and divide that result by the number of participating students to obtain the variance estimates. This must be done for both years in question. Second, sum the variance estimates. Third, take the square root of the summed variance estimates. Step three yields the standard error of the difference in proportion. Fourth, multiply the standard error by the appropriate z-value to establish the confidence limit. The federal government required that Nevada cap the confidence associated with Safe Harbor comparisons at .75. A z-score of .675

establishes this limit. Finally, divide the resulting confidence interval by the percentage of non-proficient students in year one to convert the confidence interval for the difference in proportions to the confidence interval for the percent difference in proportions.[4]

So for our working example:

The standard error = the square root of { [(.30 *.70) / 120)] + [(.25 * .75)/100)] } = .0602
The Z-score transformation to .75 limit = .0602 * .675 = .0406.
The conversion to CI for percent difference in proportions = .0406 / .75 = .0541

To adjust our observed difference we would add the confidence interval to the observed difference or .0667 + .0541. This equals .1209 or 12.09%. This number would be compared to the 10% change Safe Harbor threshold, and in this exemplar we would judge the school to have met the Safe Harbor criterion.

Test Participation Rate Comparison

As a reminder, under NCLB all students enrolled at the time of testing must participate and must be included in the participation rate calculation. Participation rate must be calculated separately for ELA and math. No correction for measurement error is applied to this comparison.

The observed participation rate is compared against the 95% participation rate AMO expectation (established by the NCLB legislation) for the whole school and for each of its student subgroups enrolled at the time of testing (whether or not the students have been continuously enrolled since Count Day).. This is a simple comparison, but 95% is a rigorous standard. Moreover, if strictly applied for a school or subgroup within a school with 20 students, all but one student would have to participate in the assessment to meet the participation criterion. If the school or subgroup had 19 or fewer students, all students would have to participate to meet the 95% criterion (e.g. 18/19 = 94.7%).

There are legitimate circumstances that can result in a student's failure to participate. In an attempt to be sensitive to this, a modified criterion has been established for schools or subgroups within schools that have fewer than 20 students. It is labeled the n-1 rule. Instead of using the 95% threshold in this instance, we apply a standard of n-1, with n being equal to the number of enrolled students at the time of testing. For instance, if a school had only 19 students, at least 18 of the students would have to participate. Likewise, for a school with 10 students, at least 9 would have to participate.

Other Indicator Comparison

As mentioned previously, any student enrolled at the school during the school year will be included in the Other Indicator calculation. Additionally, no measurement error correction is currently used with the other indicator comparisons. As noted, only the

[4] Again, refer to the AYP Calculator to calculate eligibility for Safe Harbor.

school as a whole, not student subgroups, will be judged against the Other Indicator target as a stand-alone AYP analysis. Student group performance on the Other Indicator is only considered if a Safe Harbor comparison is needed when the PAC AMO was not met by the whole school or student subgroup in question.

The first step in establishing the Other Indicator calculation was to establish State goals. For average daily attendance (ADA), Nevada Revised Statutes require a 90% student attendance rate. The State adopted this threshold as its statewide objective to be reached by the school as a whole and, when applicable, by each student subgroup.

For graduation rate, no such standard was established by statute. To explore alternatives, the Department of Education applied methods provided by NCLB to establish PAC indicator baselines. This resulted in an application of the school percentile method described previously. Using this as reference, the State Board of Education temporarily adopted a graduation requirement of 50%. [5]

For either ADA or graduation rate, a school or student subgroup can meet the requirement in two ways. First, if they perform at or above the threshold, they have met the AYP requirement. Second, if they are below the threshold but have made some positive gain in comparison to the previous year, they are judged to have met the criterion.

For example, if an elementary school's ADA is at or above 90%, they have met the Other Indicator criterion. If ADA is below 90% but it is greater than the previous school year ADA, the school has met the Other Indicator criterion.

Summary of Section V: Indicator Comparisons: Achievement, Participation, & Other Indicators

Operational definitions of each of the AYP achievement indicators (PAC, PART, and OI) were discussed along with the process for establishing statewide indicator goals and measures used to increase the reliability of our decisions. Achievement indicator comparisons and the use and derivation of AMOs were explained. A table of tiered increases estimating proficiency levels (AMOs) needed in order to meet the NCLB goal of 100% proficiency for all students by 2013-2014 was provided. The school enrollment method of deriving the baseline figures for AMOs was described. Differences between high school AMOs and assessments and elementary and middle school AMOs and assessments were explained. Addressing sampling error by applying the standard error of proportion was outlined. The Safe Harbor/Relative Growth comparison was explained. The test participation rate comparison (PART) and its application to small groups (less than 20 students) were explained, as was the comparison made for Other Indicator.

[5] As mentioned in the section titled Other Indicator: Graduation rate, Nevada is in the process of transitioning from its current graduation rate to the federally required Adjusted Cohort Graduation Rate (ACGR). Refer to the guidance mentioned in footnote 3.

Conducting an AYP analysis by using all of these operational procedures allows the State to conduct school and district level comparisons and to make preliminary AYP determinations. The next section outlines the process of transitioning from preliminary determinations to final determinations, including reference to the AYP appeals process.

Section VI: School and School District AYP Classifications and Annual Achievement Designations

School AYP Classifications and Appeals

Based on collected assessment and Other Indicator data, the State conducts AYP analyses for all Nevada public schools and school districts. The result is a profile for each school that summarizes the State's preliminary findings. School profiles include graphic representations of the results of the current analysis along with the data that was used to determine the school's AYP designation. The State is obligated to provide this information for the majority of schools and districts by June 15 and for other schools (certain multi-track schools) by June 30th. School districts share with their schools the information provided by the NDE in the preliminary profiles. This preliminary data prompts the appeal window which formally extends through the end of July. During this appeal window, qualifying appeals (as described in the document *2010 Explanation of Appeals)* may be brought forward through formal process for consideration.[6]

During the appeals window schools are given an opportunity to appeal achievement designations to their local school district. School districts then consult with the Nevada Department of Education in judging school-based appeals prior to making final determinations of school classification and designation. As part of this process, school districts must furnish the NDE with comprehensive and credible support materials as documentation to validate school-level appeals (i.e. student data files, screen shots, and output from reanalysis of data). Both the formal appeals request and the supporting documentation must be presented electronically through the Bighorn portal, or may be presented in person. No appeals requests or supporting documentation should be sent by email.[7]

To facilitate the appeals process, the NDE schedules formal meetings with school districts in order to thoroughly review all appeals. These meetings are scheduled early enough in the appeal window to provide ample time for further evaluation should a special circumstance prohibit resolution at the time of the meeting. In order to facilitate a careful consideration of all appeals, NDE requests that all appeals with supporting documentation be submitted a minimum of three days in advance of the scheduled appeal session.

The opportunity for appeal is given in the interest of making valid decisions. The NDE and local school districts have worked jointly to specify grounds for appeals. These grounds for appeal are reviewed annually and shared with school districts prior to the receipt of preliminary findings. For example, appeals may be granted if student performance was adversely affected by extraordinary and unavoidable circumstances

[6] Access the document *2010 Explanation of Appeals* in the AYP Documents folder under the AYP tab on the Bighorn portal.
[7] Access the electronic Appeals Form in the AYP Documents folder under the AYP tab on the Bighorn portal.

during testing, if significant coding errors impact the AYP analysis[8], if additional statistical analyses conducted by the school or school district identify errors in the state calculations, or if other significant factors produce statistical or substantive explanations for school performance. [9]

School District Classifications

At the same time the NDE issues school level preliminary classifications and designations, it issues preliminary school district classifications and designations. School districts then have an opportunity to appeal their classifications directly to the NDE. The NDE employs a nearly identical list of appeal grounds as for individual schools in judging school district appeals. Just as when considering school district appeals, the NDE requires that school districts provide valid supporting documentation along with the formal appeal application in electronic format.

After the close of the district appeal window, the NDE releases its final list of school district classifications and designations by category. Table 8 includes an outline of a typical timeline from the spring test windows to final AYP determinations.

Table 8. Typical AYP Schedule of Activities

April 15th	Approximate close of spring testing window
April 22nd	Score materials to test vendor
May 20th	Assessment reports to school districts
June 15th	NDE issues preliminary school and school district AYP classifications
July 1st to July 31st	Designation appeal window
August 1st	Final school / district designations made

Achievement Designations

In Need of Improvement (INOI) Designations

Once AYP classifications and designations have been formally determined and the appeals season ends, the tracking of schools for purposes of determining sanctions or rewards ensues. As noted earlier, schools are judged separately in ELA and in Math as a requirement of NCLB. Consistent with this logic as applied to the ELA and math achievement indicators, Nevada also tracks schools by subject areas and Other Indicators separately. To be designated as INOI (In Need of Improvement) a school

[8] Coding errors may occur for a variety of reasons. Those judged to be legitimate errors, and not errors due to negligence or errors that are repetitive from past years, may result in a reanalysis of AYP. Reanalysis is the responsibility of the school and school district.

[9] Refer to the 2010 AYP Appeals Criteria document on the Bighorn Portal in the AYP Documents folder at https://bighorn.doe.nv.gov/Bighorn/AYP/default.aspx

must fail AYP in two consecutive years in the same subject areaor in the Other Indicator.

For example, a failure in year 1 in ELA followed by a failure in ELA in year 2 results in an In Need of Improvement year 1(INOI Y1) designation for ELA. However, failure in ELA in year 1 followed in the following year by a failure in Math but passing in ELA would not result in an INOI designation. Instead, the school would move from being on *Watch* for ELA to on *Watch* for Math. A failure in Math in year 3 would move the school into INOI year 1status for math.

Once identified as In Need Of Improvement, a school must successfully pass the associated AYP criteria for two consecutive years before the INOI designation can be removed. For example, a school designated as INOI because of Math failure would need to pass the Math requirements for two consecutive years to have the label removed. For the first year of AYP success the school would receive the designation INOI Hold. Then in the second year, if the school again succeeds in that achievement indicator, the designation would revert to Adequate. A failure in ELA in either of those two years, but not in both consecutively, would not affect the school's INOI status; the school would now be on *Watch* relative to ELA performance.

Consequences of the In Need of Improvement (INOI) Designation and Hold Patterns

The reader is referred to the Nevada Department of Education website (http://nde.doe.nv.gov/AYPOverview.htm) for a more complete description of consequences associated with AYP failure. In brief, federal and State statutes specify the actions that must be taken or, when applicable, may be chosen as schools are designated as *INOI* for multiple years.

Some distinction is made in the types of actions taken depending on a school's Title I status. The actions that must be taken become more invasive as consecutive years of failure increase. For example, a Title I school that is classified as *INOI* for the first time (*INOI YR1*) must offer school choice to all students. If that school fails AYP the following year (*INOI YR2*), the school must continue to offer choice but now must also provide supplemental educational services to students.

A school that makes AYP the year after being classified as *INOI* continues to carry that label but is also considered to be on "*Hold*" status., To remove the *INOI* label, a school must make AYP for two consecutive years in the applicable content area(ELA or math). However, federal and State statutes (NRS) allow a delay in the sequence of corrective actions during the year after which AYP was made following the INOI designation. For example, a Title I school that is classified as *INOI* for the first time (*INOI YR1*) must offer school choice to all students. If the school were to make AYP in the following school year, it would be classified as *INOI* YR1 Hold because it must make AYP for two years to have the label removed. However, even though it is the second year in which the school is labeled *INOI*, since it made AYP and is on Hold, the school does not have to offer supplemental services, although it still must offer school choice.

As noted, if the school makes AYP for two consecutive years after receiving an *INOI* designation, that designation is removed. If a school is designated as being on *HOLD* but fails AYP in the following year, the *Hold* status is removed and the new label is applied (e.g., an *INOI YR1 HOLD* designation becomes an *INOI YR2* designation) and appropriate corrective actions are taken. In our example, the school would now have to offer school choice as well as supplemental services. A table of AYP designations and consequences is available in the *SAGE School Improvement Guidebook* at http://nde.doe.nv.gov/SchoolImprovement/SageGuidebook/Appendices_Section.pdf.

Exemplary and High Achievement Designations

While the AYP classification system is designed to identify schools that require technical assistance and support, it is also designed to identify schools that are exceeding State expectations for performance. This is a key attribute of the model if it is to identify schools that can serve as models for lower performing schools that share similar characteristics.

As required by Nevada Revised Statutes, the State Board of Education developed criteria to be used in designating schools as *High Achieving(including High Achieving: Exemplary Turnaround)* and *Exemplary* (including *Continuing Exemplary*). Following is the basic set of criteria that must be met for a school/school district to earn such a distinction.

To receive either distinction, the school or school district cannot be labeled *INOI*. In addition to meeting AYP in the current school year, the school or school district must meet these requirements:

To be designated as *High Achieving*:
1) The school (or district) must make adequate yearly progress for the current year.
2) The school (or district) may not be designated as *In Need of Improvement*.
3) The percentage of students in each identifiable subgroup that score at or above the level of "meets standard" in each subject area must be significantly greater than the annual measurable objective or PAC requirement; ***or***
4) For the school as a whole (not subgroups), the reduction in the percentage of non-proficient students (students scoring at or above meets standard) must decrease by significantly more than 10% from the previous school year.

To be designated as *High Achieving: Exemplary Turnaround*:
The school has attained the High Achieving or Exemplary designation and has exited the In Need of Improvement designation within the current three year period. (Example: School was INOI or INOI Hold in 2007-2008 or 2008-2009; attains High Achieving in 2009-2010.

To be designated as *Exemplary:*
1) The school (or district) must make adequate yearly progress for the current year.
2) The school (or district) may not be designated as *In Need of Improvement.*

3) The percentage of students in each identifiable subgroup that score at or above the level of "meets standard" in each subject area must be significantly greater than the annual measurable objective or PAC requirement; ***and***
4) For the school as a whole (not subgroups), the reduction in the percentage of non-proficient students (students scoring at or above meets standard) must decrease by significantly more than 10% from the previous school year.

To be designated as *Continuing Exemplary:*
The school was exemplary in the previous year. The school is currently High Achieving – Status. There is no significant difference from the previous year in the Whole School PAC: the Whole School PAC without Confidence Interval is no less than 90%.

For the PAC comparisons, "significantly greater" is based on a one-tailed 95% confidence interval. This means that the lower tail of the observed PAC for the school and subgroup, when relevant, must be greater than the annual measurable objective or PAC in the content domain (ELA or math). For the reduction in non-proficiency comparison, "significantly more" is based on a one-tailed 75% confidence interval meaning that the lower tail of the observed decrease for the whole school must be greater than 10%.

For example, if the PAC objective in ELA at the elementary level were 30%, using the formula provided previously for calculating the standard error of the proportion and the z-score transformation (see *Section V: Adjusting PAC for Sampling Error),*
for a school of 25 students the observed PAC in ELA would have to be 46.5% or higher to be judged as significantly greater than the hypothetical annual measurable objective of 30%. Likewise, using the formula for the standard error of the difference in proportions and assuming that the size of the school was not different in the previous year, the PAC rate for the school in the previous year would have had to have been 28.7% or lower for the reduction in non-proficiency to be judged as significant.

To aid in making significance judgments, the Department of Education has published a tool available at its website that enables easy analysis of PAC and Safe Harbor comparisons. The tool ("AYP Calculator") assists schools and school districts in recalculating AYP for the purpose of AYP appeals. This tool can also be used to target the level of performance necessary to be considered High Achieving or Exemplary. [10]

Reporting of Annual AYP Judgments

After the AYP appeals window closes and results are finalized, the NDE reports annual judgments in multiple ways. First, the Department issues a press release that summarizes annual AYP findings. The Department does not release preliminary findings to the public- these are released to the school districts and State schools. However the NDE may release information after school districts have made final designations in concert with the NDE. Detailed profiles of schools and lists of schools and associated designations are provided on the department web page

[10] Again, access the AYP Calculator at http://nde.doe.nv.gov/calculators.xls or in the AYP Documents folder under the AYP tab on the Bighorn portal.

(http://nde.doe.nv.gov/AYP.htm) following finalizing of designations. The final designations are made on or before August 1st.

Additionally, Nevada Revised Statutes require that information relative to both AYP and INOI classifications be published annually (See list on NDE's website at http://nde.doe.nv.gov/AYP/AYPdesignations09.pdf)
There is also a listing of the school's designation in the annual accountability report. Furthermore, schools identified as *INOI* must be listed along with an indication of the number of consecutive years in which they have had that label. It is important to note that this reporting requirement is State-specific and is not required by NCLB.

Summary of Section VI: School and School District AYP Classifications and Annual Achievement Designations

The general approach taken to formally classify schools and report findings has been presented. Because school districts share significant authority in this process, school district staff should review this material in conjunction with district guidance.

The steps and processes described are applied to all Nevada public schools with few exceptions. Private schools are not governed by the described NCLB and SB1 accountability requirements, for instance. There are rare situations and special circumstances that prohibit the "easy" application of these rules to certain schools. Some exceptions are described next.

Section VII: Special Circumstances

Public schools in Nevada share many characteristics, and the majority of schools share similar grade configurations. For example, most schools follow K-5, K-6, 6-8, 7-8, or 9-12 grade configurations. However, there are a few anomalous configurations such as 5-8 or K-12. Moreover, some schools serve only specialized subgroups of students or contain magnet programs that serve a specific group of students. These anomalies may prohibit the application or make the application of the general AYP rules more difficult.

Small Schools

As noted above, a minimum n-size is not necessarily required to make statistical comparisons, but a policy decision has been made to only compare results for subgroups if and when their aggregated total is at least 25. This creates a problem when the total school population, aggregated across testing grades, is less than 25. It is important to note that these schools with an aggregated population of less than 25 must still be judged in some fashion and cannot be exempted from the AYP determination process.

To deal with this circumstance, the typical statistical steps are applied to small schools regardless of total size. Small schools are provided some extra flexibility in appealing classifications. The extra flexibility is related to the stability of findings based on very small sample sizes. For example, small schools may propose to introduce local assessment data that might change the interpretation of overall school performance. Local assessments have to align to State standards and must be judged to be of high technical quality in order to be used in this fashion.

Anomalous Grade Configurations

There are two general anomalies associated with grade configurations that affect the application of AYP. The first is anomalous grade spans that bridge two or more levels of instructional programming (i.e. elementary & middle, middle & high, elementary through high). For example, some schools in the State encompass grades 5 through 8. Grade 5 is typically considered as part of the elementary program, while grade 8 is considered part of the middle school program. For this reason elementary and middle school Annual Measurable Objective targets are the same. Kindergarten through grade 12 schools are split, with elementary targets used to judge performance among K-8 students and with high school targets used to judge performance among students in grades 9-12.

The second grade configuration anomaly is the instance in which the school only serves students in grades in which no state tests are administered (i.e. grades k-2). In this instance, data are "backtracked" from 3rd grade student performance to the K-2 "feeder schools."

Alternative Programs

NCLB makes no distinctions regarding school types and the application of AYP, and instead reinforces the need to hold all publicly enrolled students, schools, and school districts accountable under the AYP system. Hence, the rules that apply to traditional schools in Nevada are applied to what have been termed "alternative schools."

Many of the students enrolled in alternative schools or alternative programs are there as a result of difficulties they have experienced in traditional settings. The achievement levels among many of these students are consistently lower than achievement levels among the general population. Moreover, many of these schools serve students that are assumed to be at-risk for academic failure.

Regardless, under NCLB there is no allowable exception. Alternative schools, like all traditional schools, are judged using the standard achievement, participation, and other indicators. Just as in the case of traditional schools, school achievement is based only on students who have been enrolled in the school for a full academic year.

Schools or Special Programs for Students with Disabilities

Just as there are alternative schools/programs, in Nevada there are a small number of public schools dedicated to serving students with disabilities. Some of the dedicated programs only serve students with rare and extremely debilitating disabilities. In many Nevada public schools, there are special programs within the school that serve a particular disabled population. These programs are at times referred to as magnet programs. Often they serve students that are not zoned for enrollment in that location.

As with alternative schools, no exceptions can be made for students enrolled in public schools/programs. The federal law requires that they be accounted for and that the school must be judged relative to their achievement, etc. These students as a subgroup are treated as all other students enrolled in the school in which the assessments are administered.

Charter Schools

There is no distinction to be made between traditional public schools and public charter schools in Nevada in terms of the application of AYP at the school level. However, Nevada Statute prohibits the aggregation of charter school performance to the sponsoring school district level. Charter schools which are sponsored by a particular school district are not included in the district aggregation used for the AYP analysis.

Once again, the same AYP rules that apply to state public schools also apply to both district charter schools, State charter schools, and other State schools. The performance of students enrolled in charter schools for a full academic year is used to judge charter schools. But while charter schools are not included in the district-level AYP analysis, they are included in the State-level AYP analysis; the performance on all three achievement indicators (PAC, PART, OI) of students in charter schools is aggregated to the State level. The State is responsible for, and held accountable for, all students enrolled in its public educational programs.

Correctional Programs

As is true for alternative programs, special programs, and charter schools, the federal government does not allow a distinction to be made between traditional public schools and correctional facilities that provide educational programs for students in grades kindergarten through grade 12. Therefore correctional programs are reviewed annually by applying the same AYP rules used with traditional educational programs.

Conclusion

The AYP determination process is complex. Schools, school districts, and the State are judged based on a broad set of criteria. The system is heavily reliant on large-scale assessment results but also relies on other academic indicators (Other Indicator, participation).

The AYP system is designed to provide a valid and reliable classification and designation system for schools relative to achievement. Based on these decisions, there are significant consequences that could potentially impact the lives of students and educators. As a result, much caution has been taken in carrying out the determination process. The Nevada Department of Education, working within the restrictions of federal and State statute, has made every attempt to build an inclusive system that provides results in reliable, consistent manner.

Appendix: Glossary of Terms Related to Adequate Yearly Progress

Achievement Levels: categorizations of students and schools based upon performance on state assessments such as criterion-referenced tests in grades 3-8.

Consistent with federal statute, Nevada uses the following achievement levels:

- Emergent/Developing (not *Proficient*)
- Approaches Standard (not Proficient)
- Meets Standard (Proficient)
- Exceeds Standard (Proficient)

Achievement Standards: support content standards by describing what a student must do to demonstrate knowledge and skill attainment.

Aggregated Data: "rolling up" or combining data for purposes of analysis. (For example, when determining AYP for an elementary school serving grades K-6, grade 3-6 assessment data is combined to judge the school as a whole.)

Alignment of Standards and Assessments: test content, as a sample of content prescribed by standards, matches the breadth and depth of content prescribed by the standards. Nevada's standard-setting process and close attention to alignment of assessments provides for vertical articulation.

AMO: Annual Measurable Objective; for purposes of *AYP*, an annual goal or target for proficiency expressed as a percentage of proficient students (e.g. percentage of students scoring at or above Meets Standard); AMOs are different for English Language Arts and Math and are also differentiated by school configuration level (elementary, middle, and high school). (*AMOs* increase periodically to reach the 2013-2014 goal of 100% proficiency.)

AYP: Adequate Yearly Progress; a judgment of school adequacy based upon several criteria as prescribed by Nevada statute and federal guidelines under *NCLB.* AYP is the key measure in determining whether a public school or school district is making "annual progress" towards the academic goals established by each state. As currently configured, AYP includes a *status* indicator of school adequacy and an improvement indicator (*Safe Harbor*) for school adequacy.

AYP Consequences: Negative consequences currently in place for schools failing AYP (dependent on number of years school is in need of improvement):

- Choice – parents may choose to place student in another school

- Supplemental services – example: tutoring, special classes
- Other corrective actions – Differentiated according to length of time school is not successful in achieving *AYP*
    - Early on – technical assistance
    - In the extreme- restructuring of the school

AYP Indicators: Three indicators used for school accountability analysis are Participation, Proficiency (on CRT assessments, 5th & 8th grade writing proficiency tests, and the HSPE in Reading, Mathematics, and Writing), and Other Indicator (Average Daily Attendance for elementary and middle school, and graduation rate for high school).

Baseline: a descriptor referring to initial setting of expected performance for all students. A trajectory for increased performance is then plotted with the goal of reaching 100% proficiency by 2013-2014.

Content Standards: state what students are expected to know and what skills are to be attained at a given level and for each subject area; what information should be covered in the subject area and grade level.

Count Day: the fourth Friday after the beginning of the school's academic calendar (Nevada Administrative Code 387.345)

Multiple Measures: refers to measuring student performance using several assessments; in Nevada, this is addressed by the NPEP (Nevada Proficiency Examination Program) system.

NPEP includes these tests used for AYP analysis:

- Criterion-referenced tests (CRT's) in English/Language Arts and Mathematics
- Performance assessments (such as the 5th, 8th and 11th grade writing assessments)
- *NAA*(the Nevada Alternative Assessment)
- HSPE (the High School Proficiency Exam in English/Language Arts and Mathematics)

NCLB: No Child Left Behind; refers to federal legislation regulating states' reform efforts under the 2001 reauthorization of ESEA (the Elementary and Secondary Education Act). Sets an expectation of 100% proficiency for all students by school year 2013-2014.

N-Count: The number of students included for Participation or for Percent At or Above Cut.

- N-1 Rule: For Participation, 95% of students enrolled as of the test window must participate in the assessments. If Participation is fewer than 95% of any of the nine subgroups, the school fails AYP. If the subgroup is fewer than 20

students, all but one student must participate to achieve Adequate Yearly Progress.

- For Percent Above Cut (PAC), if N is less than 25, the subgroup is deemed too small for statistical reliability, and the PAC for that subgroup is not included in AYP.

Other Indicator: one of the three achievement indicators used in the AYP analysis.

- At the elementary and middle school levels, Average Daily Attendance (ADA) must be greater than or equal to 90% or an improvement from previous year.
- At the high school level, Graduation Rate must be greater than or equal to 50% or an improvement from the previous year.

Participation: one of the three achievement indicators used in the AYP analysis. It refers to the number of students participating divided by test window enrollment.

- For reading/math, participation is defined as a single response.
- For writing, participation is defined as one word, any language.

PAC: Percent At or Above Cut: the number of proficient students divided by the number of students using those students enrolled for the full academic year.

Proficiency: one of the three achievement indicators used in the AYP analysis. It refers to meeting the expectation for success or AMO for ELA or Math.

Proficient: meeting the expectation for success as defined under *AYP;* meeting the expected *AMOs* in the content areas of ELA and Math. In Nevada, meeting or exceeding standard equates to proficiency.

Safe Harbor: reduction in the percentage of non-proficient students in a given *subgroup* or special population group. If the sum of a school or subgroup's proficiency rate and confidence interval falls below the subject area baseline target, a safe harbor comparison is conducted. In order to make safe harbor, a subgroup must demonstrate a 10% reduction in the percentage of non-proficient students from the previous year (percent reduction + CI) and the respective subgroup must meet the other indicator criteria. The school or subgroup must meet the *Other Indicator AMO* (Average Daily Attendance or graduation rate) to be eligible for Safe Harbor.

Status Comparison: refers to a judgment based upon the percentage of students at or above the proficiency cut point (PAC) compared to annual goals for the percentage of proficient students (*AMOs*)

Subgroup: student population group or special population group as defined by NCLB and Nevada statute. Data for each of nine (9) subgroups is *aggregated* and analyzed to determine school success under *AYP*. A student may belong to several subgroups simultaneously.

Subgroups or population groups analyzed for *AYP* determinations:

- School (All students assessed within a school or district)
- American Indian/Alaska Native
- Asian American/Pacific Islander
- Hispanic/Latino
- Black/African American
- White
- Individual Educational Plan
- Limited English Proficient
- Free or Reduced Lunch

Unique Identifiers: State Unique ID; state-assigned identification codes which are unique to each student and which allow the collection and analysis of student data

Years In School (YIS): a variable used to express continuous enrollment in a school from Count Day through Test Day.
If YIS = 1, the student has been continuously enrolled and the student academic performance is aggregated into the school PAC rate.
If YIS = 0, the student has not been continuously enrolled for the full academic year.

Years In District (YID): a variable used to express continuous enrollment in a district from Count Day through Test Day. If YID = 1, the student has been continuously enrolled in the district for the full academic year and the students academic performance will be aggregated into the district PAC rate. If YID = 0, the student has not been continuously enrolled in the district for the full academic year.